UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/657,426	09/08/2003	Adam J. Ferrari	109878.132 US1	9037

23483 7590 01/24/2007

WILMER CUTLER PICKERING HALE AND DORR LLP
60 STATE STREET
BOSTON, MA 02109

EXAMINER	
LU, CHARLES EDWARD	
ART UNIT	**PAPER NUMBER**
2161	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	01/24/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/24/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

teresa.carvalho@wilmerhale.com
tina.dougal@wilmerhale.com
michael.mathewson@wilmerhale.com

Office Action Summary	Application No.	Applicant(s)	
	10/657,426	FERRARI ET AL.	
	Examiner	Art Unit	
	Charles E. Lu	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,13-15,18-29,31-33 and 36-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,13-15,18-29,31-33 and 36-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 November 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/7/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment/ Response to Arguments

1. Claims 1-11, 13-15, 18-29, 31-33, and 36-40 are pending. Claims 1-11, 13-15, 18-29, 31-33, and 36-40 are rejected.

2. Amendments to the drawing are noted. The objection to the drawing is withdrawn.

3. Amendments to the specification are noted. The objection to the specification is withdrawn.

4. Amendments to the claims to address the 35 U.S.C. 101 rejection are noted. However, the 35 U.S.C. 101 rejection of the pending claims is maintained. See below.

5. Amendments to the claims to address the 35 U.S.C. 112 rejections are noted. The 35 U.S.C. 112 rejections are withdrawn. New 112 rejections are presented due to amendment.

6. Arguments with respect to the 35 U.S.C. 103 rejections have been fully considered but are not persuasive.

Applicants argue on p. 27, first paragraph of the Amendment that there is no motivation to combine Schabes and Woods. However, the examiner respectfully disagrees. The motivation to combine Schabes and Woods is to increase search intelligence (e.g., p. 8 of previous Action). The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation

to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation comes from one of ordinary skill in the art.

Applicants argue on p. 27 of the Amendment that it is only hindsight that would suggest the above combination. The examiner respectfully disagrees. It must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). It is believed that the reconstruction is proper.

In regards to Applicant's argument that neither Schabes nor Woods teaches or suggests, "deriving a first derived score...two items" (p. 27 of Amendment), the examiner recognizes that the arguments are drawn to the amended claims, and will be treated in the rejection below.

Similarly, the argument on p. 28 concerning pruning according to a threshold will be treated in the rejection below.

As to the argument on p. 28 near the bottom of the page that Lizee does not teach "pruning...such as the second candidate single term interpretation...where the first candidate...is not eliminated," this limitation does not appear to be expressly recited in the claims.

Claim Objections

7. Claims 33 and 38 are objected to because of the following informalities:

Amended Claim 33 depends from a cancelled claim. Claim 33 will be interpreted as depending from claim 29.

As to amended claim 38 in the "determining a third score" limitation, in the last line, "associate" should be changed to associated.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 11, 13-15, 18, 29, 31-33, 36, 38, and 40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

As to claims 11, 29, 38, and 40, in the pruning step, "wherein...interpretations each have more items than a threshold." The specification describes having fewer items than a threshold, but does not appear to describe more items than a threshold.

As to claims 13 and 31, "wherein the database includes at least one item not associated with any of the first, second, or third single term interpretations." The specification does not appear to mention this restriction on a database.

As to claim 15, "wherein the database includes at least one item...single term interpretations." See reasoning above.

Dependent claims of independent claims 11 and 29 are rejected for being dependent on a rejected parent claim.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 1-11, 13-15, 18-29, 31-33, and 36-40 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As to independent claim 1, the method is drawn to an abstract idea (e.g., identifying expressions, providing approaches, associating data, and deriving a score). The claim should be a practical application of the abstract idea to produce a useful, concrete, and tangible result.

While Applicant states the claims are drawn to a practical application, the claims do not appear to produce a useful, concrete, and tangible result. For example, "deriving a score," the result of claim 1, does not appear to be useful, concrete, and tangible. See p. 24 of Amendment, last paragraph. Also see MPEP 2106.

Independent claims 11, 19, 29, and 37-40 are rejected under 35 U.S.C. 101 for similar reasons as claim 1.

All dependent claims are rejected because they do not cure the deficiencies of their parent claim(s).

The art rejection of the above rejected claims is applied in anticipation of Applicants amending the claims to overcome the rejection under 35 U.S.C. 101, discussed above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1-10 and 19-28, 37, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schabes et al (U.S. Patent 6,424,983) in view of Woods (U.S. Patent 5,724,571).

As to claims 1-5, Schabes teaches a method of interpreting a query (fig. 23, #S2301) formed of at least a first query term and a second query term (col. 10, ll. 56-59) with respect to a database of items ("source," fig. 23, #S2304), comprising:

Identifying at least a first candidate single-term interpretation associated with the first query term (alternate spelling) and

Identifying at least a second candidate single-term interpretation for the second query term (see treatment of "misspelled words," col. 10, ll. 56-58);

Identifying a first candidate multiple-term interpretation (e.g., a sentence, fig. 16), wherein a candidate multiple-term interpretation is a combination of at least the first candidate single term interpretation and the second candidate single-term interpretation (note in fig. 16, each sentence interpretation is constructed by combining single terms to form a complete path through the FSM, note also fig. 14, col. 19, ll. 1-12 to understand construction of the FSM, a path through first and second single term interpretations meets the limitation of a first candidate multiple term interpretation). Note that the above is used in a query environment (e.g., col. 24, ll. 10-20).

Schabes does not expressly teach a) providing a plurality of semantic approaches for associating a candidate multiple term interpretation with items in a database, b) identifying a set of associated items in the database according to a particular semantic approach of the plurality of semantic approaches, the set of associated items including at least two items, c) deriving a first derived score for the first candidate multiple-term interpretation from the set of associated items, and d) treating a candidate multiple term interpretation as a conjunction, disjunction, and a partial match approach.

However, Woods discloses or suggests limitation a) as seen in fig. 1, #70, fig. 4 and 5A. Also see col. 6, ll. 8-12. Woods further teaches or suggests limitation b) because a plurality of hits are found according to a semantic approach (see fig. 4-5A). Also see the below paragraph for more details. As to limitation c) see the ranking

process of figs. 4-5A. As to limitation d) see below. Note that an input query with multiple terms (e.g., fig. 4, #410) is a multiple term interpretation.

Woods further teaches wherein determining a contextual score for each candidate multiple-term interpretation includes treating the candidate multiple-term interpretations as a conjunction and/or a disjunction, and considering partial matches of the candidate multiple-term interpretations (regarding limitations "b" and "d" above). If all words are not matched in the hit document, a penalty will result (col. 6, ll. 59-62). Thus, if no penalty occurs, all words are matched and the query is treated as a conjunction. If a penalty is assigned to the hit document for matching some, but not all words (col. 6, l. 60), the query is treated as a disjunction. If a penalty is assigned for a missing word(s), a partial match of the query is considered. Thus, a conjunctive, disjunctive, and partial match approach are all implemented.

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the method of Schabes with the above from Woods, such that the multiple term interpretation queries from Schabes are subjected to the process from Woods. Therefore, a) – d) above would be implemented, including providing semantic approaches, using a semantic approach, deriving a score from the set of associated items, and treating interpretations as a conjunction, disjunction, and a partial match. The motivation to one of ordinary skill in the art would have been to increase search intelligence (Woods, col. 1, ll. 38-50).

As to claim 6, claim 7, and claim 8, Woods, in the combination of Schabes and Woods, further teaches wherein for the first candidate multiple term interpretation the

first derived score incorporates information about the particular semantic approach that is used for the set of associated items (e.g., see the various scoring that is executed in fig. 4-5A), the incorporating including using a measure of a number of terms in the first candidate multiple term interpretation that are in the set of associated items (e.g., see proximity measures, col. 6, ll. 16-23). Proximity ranking is a dominant factor in determining the first derived score, as seen in Woods (col. 6, l. 16, fig. 4, #470, fig. 5A).

As to claim 9, Schabes as modified above further teaches identifying a third candidate single term interpretation corresponding to the first query term, and a fourth candidate single term interpretation associated with the second query term (see above discussion on alternatives to misspelled words), identifying a second candidate multiple term interpretation (see FSM paths as discussed above), wherein the second candidate multiple term interpretation is a combination of third and fourth candidate single term interpretations (again, see discussion above on a path through the FSM containing desired spelling alternatives)

Schabes does not expressly teach identifying a second set of associated items associated with the second candidate multiple term interpretation according to a second particular semantic approach, and deriving a second score for the second multiple term interpretation from the second set of items, the first and second semantic approaches being different.

However, Woods, as discussed above, teaches a first set of associated terms, a first semantic approach, and a first derived score for a first multiple term interpretation.

Additionally, Schabes teaches that in an information retrieval system, for multiple queries, each query (see discussion on multiple tem interpretation) is corrected by the method described above and then each corrected query is used to retrieve information from the database (col. 25, ll. 39-52). Meanwhile, Woods discloses given an input query, implementing a semantic approach to find and rank hits to the query, as discussed above.

Furthermore, Woods teaches or suggests a second, different semantic approach, because the performance of the procedures can occur in many different orders, and that any particular order is not required (col. 6, ll. 8-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schabes and Woods with the above teachings, such that in an information retrieval system, the first and second multiple term query interpretations are processed using first and second different semantic approaches to produce respective sets of associated items, thus accomplishing the claimed invention. The motivation would have been to adapt to the user's requirements for programming, testing, or to provide any performance enhancement by performing procedures in a different order (and therefore a different approach), as known to one of ordinary skill in the art.

As to claim 10, Schabes and Woods as modified above teach selecting a first semantic approach and determining a first set of associated items associated with the first multiple term interpretation according to the first approach, as discussed above.

Schabes and Woods also teach using the first set of associated items in the database (e.g., the returned hits) to derive a first score for the interpretation. Also see above.

Schabes does not expressly teach selecting a second semantic approach and determining a second set of items associated with the first multiple term interpretation according to the second approach, and selecting between first and second sets of items to identify the set for deriving the derived score for the first multiple term interpretation.

However, Woods, as discussed above, teaches a first set of associated terms, a first semantic approach, and a first derived score for a first multiple term interpretation.

Additionally, Schabes teaches that in an information retrieval system, for multiple queries, each query (see discussion on multiple tem interpretation) is corrected by the method described above and then each corrected query is used to retrieve information from the database (col. 25, ll. 39-52). Meanwhile, Woods discloses given an input query, implementing a semantic approach to find and rank hits to the query, as discussed above.

Furthermore, Woods teaches or suggests a second, different semantic approach, because the performance of the procedures can occur in many different orders, and that any particular order is not required (col. 6, ll. 8-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schabes and Woods with the above teachings, such that a first or second of the semantic approaches, and the corresponding first or second result sets, is selected for determining the contextual score for the first candidate multiple term interpretation. Therefore, the claimed subject matter would

have been implemented. The motivation, as previously stated, would also have been to adapt to the user's requirements for programming, testing, or to provide any performance enhancement by performing procedures in a different order (and therefore a different approach), as known to one of ordinary skill in the art.

Claims 19-28 are rejected for claiming substantially the same invention as claims 1-10, discussed in detail above.

As to claim 37, Schabes teaches a method of interpreting a query (fig. 23, #S2301) formed of at least a first query term and a second query term (col. 10, ll. 56-59) with respect to a database of items ("source," fig. 23, #S2304), comprising:

Identifying at least a first candidate single-term interpretation for the first query term (alternate spelling) and identifying a second candidate single-term interpretation for the second query term ("misspelled words," col. 10, ll. 56-58); Also see above discussion.

Determining a first score for the first candidate single-term interpretation (a weight given to an alternate spelling, col. 9, ll. 21-25, col. 11, ll. 25-28 and fig. 4, #52). The first score depends only on the first query term and no other term or single term interpretations.

"Determining a second score...second query term." See above discussion.

Identifying a first candidate multiple-term interpretation (see above discussion and fig. 16), wherein the first candidate multiple-term interpretation is a combination of at least the first and second candidate single-term interpretations (in fig. 16, each

sentence interpretation is constructed by combining words to form a path through the FSM, see above discussion); and

Deriving a first derived score for the first candidate multiple-term interpretation form at least the first and second score for the first and second candidate single-term interpretation (weight for an alternative spelling and sum of all the weighted words, col. 22, ll. 13-15, also see above discussion);

Schabes does not expressly teach providing a plurality of semantic approaches for associating a candidate multiple term interpretations with items in the database, and identifying a set of associated items according to a particular semantic approach, the set of items including at least two items.

However, Woods teaches providing a plurality of semantic approaches (col. 6, ll. 13-16) for associating the one or more candidate multiple term interpretations with items in the database (e.g., see fig. 4 and above discussion). Woods further teaches that a set of associated items is found (see fig. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schabes with the above teachings, such that a particular semantic approach as described is implemented, a set of associated items are found, and each multiple term interpretation can be subjected to the semantic approaches. The motivation would have been to allow for flexible ranking of retrieved items, as taught by Woods (col. 6, ll. 13-16).

Schabes and Woods do not expressly teach deriving a second derived score for the first candidate multiple-term interpretation from the set of associated items and information about the particular semantic approach used.

However, Woods discloses scoring hits in the database by considering term proximity in a hit document based on the query (e.g., col. 6, ll. 18-23), thus producing a contextual score for each query based on a semantic approach (see fig. 4 and above discussion).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the method of Schabes and Woods with the above teachings, therefore determining a contextual score for each sentence (multiple term interpretation), since one would have been motivated to increase search intelligence (Woods, col. 1, ll. 38-50).

Schabes and Woods as modified above further teach incorporating information about the particular semantic approach that is used for the candidate multiple term interpretation, as seen in fig. 4 of Woods, because the semantic approach and particular penalties associated with them contributes to the score.

Schabes and Woods do not expressly teach deriving an overall score for the first candidate multiple-term interpretation by combining the first derived score and the second derived score for the first candidate multiple-term interpretation.

However, Schabes discloses wherein two scores are combined to form an overall score. In col. 20, ll. 24-34, the weights of input FSM represent the first score, and the weights of grammar FSM represent the second score. The two weights are combined

using the weights application module to form an overall score (fig. 13, #135 and figs. 17-18).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the method of Schabes and Woods with the additional teachings of Schabes, therefore producing an overall score from a combination of the context-independent and contextual scores. The motivation would have been to provide a more effective measure of relevance than any one of the scores alone, as taught by Schabes.

Claim 39 is rejected for claiming substantially the same invention as claim 37, discussed above. Note that in the derivation of the first derived score as in the combination above, Schabes combines the first and second scores for the first and second candidate single term interpretations (e.g., col. 20, ll. 24-26), and for the first candidate multiple term interpretation, the second derived score incorporates information about the particular semantic approach (see above).

11. Claims 11, 13-15, 18, 29, 31-33, 36, 38, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schabes et al (U.S. Patent 6,424,983) in view of Lizee et al (U.S. Patent 5,671,404), further in view of Woods (U.S. Patent 5,724,571).

As to claim 11, Schabes teaches a method of interpreting a query (fig. 23, #S2301) formed of at least a first term and a second term (col. 10, ll. 56-59) with respect to a database of items ("source," fig. 23, #S2304), comprising:

Identifying at least a first candidate single-term interpretation and a second candidate single term interpretation associated with the first query term, and

a third candidate single term interpretation associated with the second query term (see above discussion on spelling corrections of Schabes);

Schabes teaches the identifying step, "identifying...the third candidate single term interpretation" (see the above discussion on the paths of Schabes).

Schabes does not expressly teach the pruning limitation, "pruning...second candidate single term interpretation."

However, Lizee teaches the pruning limitation. See e.g., fig. 2.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schabes and Woods with the above teachings, such that additionally, single term interpretations are pruned when they correspond to insufficient items in the database. The motivation would have been to achieve greater speed, and to minimize interaction between database and user, as taught by Lizee (Abstract, col. 2, ll. 50-57).

Schabes and Lizee do not expressly teach the deriving limitation, "deriving...includes at least two items."

However, the combination of Schabes and Lizee teaches the multiple term interpretation as discussed above and in fig. 2 of Lizee.

Furthermore, Woods teaches deriving a score from a set of associated items in the database, the set including at least two items, as discussed above.

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to further modify Schabes and Lizee with Woods, therefore deriving a first score for the first multiple term interpretation from a set of items in the database, and thus implementing the claimed subject matter, since one would have been motivated to increase search intelligence (e.g., Woods, col. 1, ll. 38-50). Another motivation would have been to allow ranking of hit items, also taught throughout Woods.

As to claim 13, Lizee as modified above by Schabes and Woods, further teaches wherein pruning includes generating a query identifying a reduced set of all the items in the database associated with the first candidate single term interpretation, and evaluating an intersection query for each of a first, second, and third candidate single term interpretations to identify a set of associated items for each of the first, second, and third single term interpretations (e.g., fig. 2, see query C1, and Query C1 & C3 & C4).

Lizee, Schabes, and Woods do not expressly teach evaluating the intersection query on a reduced set.

However, Lizee teaches producing a reduced set in Query C1 of fig. 2, as C1 itself produces 150 objects from the database. Lizee suggests that subsequent intersection queries consisting of first, second, and third terms such as C1 & C3 & C4 of fig. 2 can be evaluated against the reduced set of 150 objects obtained through condition C1, because C1 & C3 & C4 at most will return the 150 items from C1.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Schabes, Woods, and Lizee such that

subsequent intersection queries of fig. 2 which correspond to a first, second, and third term, are tested against a previous satisfactory result set (e.g., 150 objects of C1), thereby evaluating the intersection query with the reduced set as claimed. The motivation, as known to one of ordinary skill in the art, would have been to save processing time and increase performance since re-querying the entire database would be more time consuming. It should be noted that Lizee is drawn towards providing faster searches (e.g., Abstract) and this modification would further enhance Lizee's performance.

Lizee, Schabes, and Woods do not expressly teach wherein the database includes at least one item not associated with any of the first, second, or third single term interpretations.

However, Lizee teaches that the database is queried for objects satisfying a query condition, and if objects are not found, taking appropriate actions (fig. 1A, #130). Lizee also discloses a database with at least 150 objects (fig. 2). Therefore, Lizee teaches or suggests that if the first condition returns no items, appropriate actions will be taken (fig. 1A). As such, there can be at least one item in the database not associated with the first single term interpretation, as claimed, because no items would be returned when the database is queried with the first condition.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Schabes, Woods, and Lizee such that the database contains at least one item not associated with the first single term interpretation. The motivation, as known to one of ordinary skill in the art, would have

been to provide a more realistic database, especially for testing, because in actual use it is highly possible that the first term to be tested contains no associated items in the database.

As to claim 14, Lizee, in the combination with Schabes and Woods above, further teaches a threshold of 1 (see fig. 2).

Claim 15 is rejected because it has already been discussed in detail with respect to claim 13.

As to claim 18, Schabes, in the combination with Woods and Lizee above, teaches, "determining a first score...other than the second query term" (e.g., see fig. 16). Schabes further teaches wherein pruning includes using the first, second, and third scores for selecting candidate single term interpretations to prune (note that in the replacement procedure of fig. 3 and 13, a word, or single term interpretation, is replaced by the best alternative word, hence pruning uses the first, second, and third scores).

Claims 29, 31-33, and 36 are rejected for claiming substantially the same invention as claims 11, 13-15, and 18, discussed in detail above.

As to claim 38, Schabes teaches a method of interpreting a query (fig. 23, #S2301) formed of at least a first query term and a second query term (col. 10, ll. 56-59) with respect to a database of items ("source," fig. 23, #S2304), comprising:

Identifying a first and second candidate single-term interpretation for the first term and identifying a third candidate single-term interpretation for the second term ("misspelled words," col. 10, ll. 56-58, also see above discussion);

Determining a first score for the first candidate single-term interpretation (a weight given to an alternate spelling, col. 9, ll. 21-25, col. 11, ll. 25-28 and fig. 4, #52, also see above discussion). The score only depends only on the first query term and not on any other single term interpretations.

As to "determining a second score...other than the first query term" and "determining a third score...other than the second query term," see above discussion.

Identifying a first candidate multiple-term interpretation (see above and fig. 16), wherein the first candidate multiple-term interpretation is a combination of the first and second candidate single-term interpretation (see above discussion);

Determining a first derived score for the first candidate multiple-term interpretation by combining the first and second score for the first and second candidate single term interpretations (e.g., see sum of all the weighted words, col. 22, ll. 13-15 and col. 20, ll. 24-26);

Schabes does not expressly teach determining a second derived score for the first candidate multiple-term interpretation from a set of items in the database associated with the first candidate multiple term interpretation, the set including at least two items.

However, Woods discloses scoring hits in the database by considering term proximity in a hit document based on the query (e.g., col. 6, ll. 18-23), thus producing a contextual score for each query using a database. Woods further teaches that a set of associated items is found (see fig. 4).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the method of Schabes with the above from Woods, therefore determining second derived score, since one would have been motivated to increase search intelligence (Woods, col. 1, ll. 38-50).

Schabes and Woods do not expressly teach deriving an overall score for the first candidate multiple-term interpretation by combining the first derived score and the second derived score for the first multiple-term interpretation.

However, Schabes discloses wherein two scores are combined to form an overall score. In col. 20, ll. 24-34, the weights of input FSM represent the first score, and the weights of grammar FSM represent the second score. The two weights are combined using the weights application module to form an overall score (fig. 13, #135 and figs. 17-18).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to modify the method of Schabes and Woods with the additional teachings of Schabes, therefore producing an overall score from a combination of the two claimed scores. The motivation would have been to provide a more effective measure of relevance than any one of the scores alone, as taught by Schabes.

Schabes and Woods do not expressly teach the pruning limitation.

However, Lizee teaches or suggests the pruning limitation. See above and fig. 2.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Schabes and Woods with the above from Lizee, such that the pruning is implemented. The motivation would have been to achieve

greater speed, and to minimize interaction between database and user, as taught by Lizee (Abstract, col. 2, ll. 50-57).

Claim 40 is rejected for claiming substantially the same subject matter as claim 38 discussed above. Also note fig. 16 of Schabes.

Conclusion

12. Applicant's amendment necessitates new grounds of rejection, and Applicant's arguments were fully considered but were not persuasive. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Lu whose telephone number is (571) 272-8594. The examiner can normally be reached on 8:30 - 5:00; M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be contacted at (571) 272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JEFFREY GAFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

CL
Assistant Examiner
AU 2161
1/17/2007

/CDL/
C. Dune Ly